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10/692,290	10/23/2003	Anssi Ramo	944-003.182	7122

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EXAMINER

PIERRE, MYRIAM

ART UNIT PAPER NUMBER

2654

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/692,290	RAMO ET AL.	
	Examiner	Art Unit	
	Myriam Pierre	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>01/26/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure, which is not enabling. The disclosure cites "segmenting step is carried out concurrent to or before said encoding step", on page 7, lines 15-16. The step of "segmenting concurrent or before encoding step" is critical or essential to the practice of the invention. However, claim 7 recites "...segmenting is carried out after the encoding step" which is contrary to the disclosure. The step of segmenting is done concurrent to or before encoding step, but this feature was not included in claim 7 and so claim 7 is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 7, 12-13, 18 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999).

Claim 2 recites the limitation "said adjusting". There is insufficient antecedent basis for this limitation in the claim. The examiner has interprets "adjusting" as "segmenting".

Claim 7 recites the limitation "after" in line 1. There is insufficient antecedent basis for this limitation in the claim. The term is indefinite because the term is not supported in the specification. The examiner interprets "after" as "before".

Claim 12 the term "quantization mode" is used by the claim to mean "classifying the speech signals including voiced, unvoiced, transition/mixed, and silent frames", while the accepted meaning is "arranged in the order of quality/type and quantity." The term is indefinite because the specification does not clearly redefine the term. The examiner interprets "quantization mode" as "classifying the speech signals including voiced, unvoiced, transition/mixed, and silent frames".

Claim 13 the phrase "target accuracy in reconstructing of the audio signal" is used by the claim to mean "frame classifier using bits per frame, in which the speech decoder identifies the class", while the accepted meaning is "a value set to an audio signal to qualify it as accurate when reconstructing the audio signal." The term is

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indefinite because the specification does not clearly redefine the term. The examiner interprets "target accuracy in reconstructing of the audio signal" as "frame classifier using bits per frame, in which the speech decoder identifies the class".

Claim 18 the term "un-quantized" is used by the claim to mean "not quantized", while the accepted meaning is "digitized data which has no further need to be quantized". The term is indefinite because the specification does not clearly redefine the term. The examiner interprets "un-quantized" as "digitized data which has no further need to be quantized".

Claim 22 recites the limitation "the parameter" in line 5. There is insufficient antecedent basis for this limitation in the claim. The examiner interprets "the parameter" as "a parameter".

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-13 are rejected under 35 U.S.C. 102 (b) as being anticipated by Gersho et al. (6,311,154).

As to claims 1 and 2, Gersho et al. teach

segmenting **{partitioning or classifying}** the audio signal **{speech}** into a plurality of segments **{frames}** (**partitioning samples of a speech signal into frames, col. 4, lines 25-27**) based on the audio characteristics **{classes}** of the audio signal (**classifying the speech signal in each from into one of a plurality of classes, col. 4, lines 25-27**); and

encoding the segments **{frames}** with different encoding settings **{excitation}** (...**"encoding an excitation for the frame using one of a plurality of excitation coding...selected according to the class of the frame..."**, col. 4, lines 30-33).

As to claim 3, Gersho et al. teach

characteristics **{classes/classifying}** include voicing characteristics **{voice}** in said segments **{frames}** of the audio signal **{speech signal}** (**classifying the speech signal in each frame into classes, classes include voice frame, col. 4, lines 25-27 & 35**).

As to claim 4, Gersho et al. teach

characteristics **{identifying}** include energy characteristics **{presence of energy}** in said segments **{window}** of the audio signals **{residual signal}** (**identifying the location of a window, identifying considers the presence of energy in the residual signal, col. 4, lines 65-67**).

As to claim 5, Gersho et al. teach

Characteristics **{positioning}** include pitch characteristics **{function of the pitch}** in said segments **{frames}** of the audio signals **(positioning the window at a location that is a function of a pitch of the frame, col. 4, lines 59-61)**.

As to claim 6, Gersho et al. teach segmenting **{partitioning}** is carried out concurrently **{classifying and encoding}** to said encoding step **{coding}** **(partitioning samples of speech, classifying speech signals into classes, coding a speech signal, col. 4, lines 24-25. The classifying and encoding process are done concurrently)**.

As to claim 8, Gersho et al. teach plurality of voicing values **{voice or unvoiced}** are assigned to the voicing characteristics of the audio signal in said segments, and wherein said segmenting **{partitioning}** is carried out based on the assigned voicing values **(classifying a frame is being one of an unvoiced or voiced, col. 4, lines 52-53)**.

As to claim 9, Gersho et al. teach a value designated **{classifying}** to a voiced speech signal and another value designated to an unvoiced signal **(classifying a frame is being one of an unvoiced or voiced, col. 4, lines 51-52)**.

As to claim 10 Gersho et al. teach

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A value designated **{classifier}** to a transitional stage between the voice and unvoiced **{transitional}** signals **{frame}** (**classifier for classifying a transition frame, col. 4, lines 52-55**).

As to claim 11, Gersho et al. teach

a value designated **{(m)=1}** to an inactive period **{silent frame}** in the speech signal **{speech}** (**If (m)=1, then the current frame is declared a silent frame, col. 15, lines 7-8 & 35-37**).

As to claim 12, Gersho et al. teach

the segmenting step is carried out based on the selected classifying the speech signals including voiced, unvoiced, transition/mixed, and silent frames (**col. 4, lines 36-37, col. 15, lines 35-36 & col. 9, lines 63-65**).

As to claim 13, Gersho et al. teach

frame classifier using bits per frame, in which the speech decoder identifies the class (**col. 9, lines 63-65**).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gersho et al. (6,311,154) as applied to claim 1 above, and further in view of Gersho (IEEE-96).

As to claims 14 and 16, Gersho et al. (154) teach segmenting {partitioning}.

However, Gersho et al. (154) does not teach of linear pitch representation.

Gersho (IEEE-96) teaches

linear pitch representation (piece-wise linear, by citing in "Generalized analysis-by-synthesis coding and its application to pitch prediction", page 906, left col., 3rd paragraph).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to allow linear piece-wise representation to track the pitch in order to reduce the bit rate for pitch and eliminate the need for fractional pitch, as taught by Gersho, page 906 left col. 3rd paragraph.

As to claim 15, Gersho et al. (154) teach

Forming {partition} a parameter signal {model parameter} based on the audio signal data {speech} (speech, col. 15, line 14).

Gersho et al. (154) do not teach down-sampling.

However, Gersho (IEEE-96) teach

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down-sampling (**down-sampling, page 905, right col., paragraph 1. down-sampling necessarily having a smaller number then the first**).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to down-sample the encoded speech signal, in order to reduce sampling rate, thus providing a large complexity reduction, as taught by Gersho (IEEE-96), page 905, right col., paragraph 1.

Neither Gersho et al. (154) nor Gersho (IEEE-96) teach up-sampling.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to up-sample the encoded speech signal for decoding, and necessarily the third number is equal to or greater than the first number, in order to restore the original parameters for decoding.

As to claim 17, Gersho et al. (154) teach the signal data {**speech**} comprise quantized {**two bits per frame**} parameters (**linear prediction parameters, col. 8, lines 57-58 & col. 9, line 65. Two bits per frame is used to identify the class/parameters of the speech signal, such as 00, 01, etc.**).

As to claim 18, Gersho et al. (154) teach un-quantized {**un-quantized linear prediction**} parameters (**parameters, col. 15, lines 14**).

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5. Claims 19-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gersho et al. (6,311,154).

As to claim 19 and 27, Gersho et al. (154) teach

an input for receiving audio data indicative of the parameters in the adjusted representation **(input applied to element 14, Fig. 3).**

and a module responsive to the audio data for generating the audio signal based on the adjusted signals and the characteristics of the audio signal **(Fig. 3. One would necessarily need a module to respond to an adjusted audio signal/characteristics of audio signals).**

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use a decoder in order to reverse the encoding data for further processing, such as modulating or storing the audio signal.

As to claim 20 and 28, Gersho et al. (154) does not teach recording parameters.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to record audio parameters in order to update the audio data for storage and retrieval.

As to claim 21 and 29,

Gersho et al. (154) teach.

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the audio data is transmitted through a communication channel and wherein the input of the decoder is operatively connected to the communication channel for receiving the audio data (**digital communications, col. 1, line 1 and Fig. 3**).

As to claim 30, Gersho et al. (154) teach

a mobile terminal (**mobile base station, col. 6, lines 17-18**).

As to claim 22, Gersho et al. (154) teach,

an input for receiving audio data indicative of the characteristics (**encoder, Fig. 1, element 82**); and

an adjustment module for adjusting a parameter based on the characteristics of the audio signal for providing an adjusted representation of a parameter (**modified residual, adjusts frames, Abstract and Fig. 9**).

As to claim 23, Gersho et al. (154) teach,

a quantization module responsive to the adjusted representation for coding the parameters in the adjusted representation (**Fig. 9**).

As to claim 24, Gersho et al. (154) teach,

an output end operatively connected to a storage medium for providing data indicative of the coded parameters in the adjusted representation (**stored as vectors in a codebook, col. 1, lines 64-65**).

As to claim 25, Gersho et al. (154) teach,

output end, operatively connected to a communication channel for providing signals indicative of the coded parameters in the adjusted representation to the communication channel for transmission (**Fig. 8**).

At the time of the invention, it would have been obvious to one of ordinary skill in the art use a coder which necessarily has an output and ability to represent the adjusted audio parameters in order for further processing/updating such as transmitting audio signals via wireless communications system.

As to claim 26, Gersho et al. (154) teach,

a computer software product (algorithms, col. 2, line 54).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to implement a coder in a software product conveniently for updating.

As to claim 31, Gersho et al. (154) teach,

Implementing in a cell phone system which necessarily has both base station and mobile station adapted to communicating with the base stations (**col. 6, lines 33-36**).

a decoder for generating a synthesized audio signal indicative of an audio signal having audio characteristics, wherein the audio signal is coded in a coding step into a plurality of parameters at a data rate (**Figs 4-5 and Fig. 1**).

The rest of the limitations in claim 31 are rejected for the same or similar reasons as claim 19 above.

As to claim 32, Gersho et al. (154) teach,
a reconstruction module for reconstructing the audio segment based on the received audio data (**decoder, Fig. 1**).

the data is indicative of the end points defining the sub-segments (**sub-frame, Fig. 2, endpoints n_1 and n_2**).

Conclusion

1. The following art made of record and not relied upon is considered pertinent to applicant's disclosure Levine et al (5,886,276); Chuprun et al. (6,385,434); Chhatwal et al. (5,042,069); Choi et al. (2003/0074192); Cellario et al. (6,108,626); Gao et al.(2003/0200092); Gao (2002/0007269); Gao et al. (6,735,567); Gao et al. (6,581,032); Aguilar et al. (6,691,082); Grabb et al. (6,094,629); Kleider et al. (6,163,766); DeJaco (5,911,128); DeJaco (6,484,138); DAS (2001/0049598); Huang et al. (6,496,798); Hardwick et al. (5,870,405) Gao et al. (2002/0143527); Eid et al. (2004/0086130); & (2004/0168114).

Levine et al. teach audio signal analyzer and encoder using parameter representation of compressed encoded data.

Chuprun et al. teach a wireless unit for interfacing communications system, dynamically

allocation of spectrum signals.

Chhatwal et al. teach reconstructing non-quantized voice signals.

Choi et al. teach low bit phase LP encoder, fragments speech into speech segments.

Cellario et al. teach classifying speech and music signals using LP and sub-band filters to provide frame-based bit stream information.

Gao et al.(2003/0200092) teach encoding and decoding speech signals, co-decs are selectively activated based on rate selection.

Gao (2002/0007269) teaches speech compression with fixed codebook, external signal setting bit-stream rates.

Gao et al. (6,735,567) teach speech compression system that encodes speech signals into bit-streams for decoding, synthesizing speech.

Gao et al. (6,581,032) teach codec selectively activated based on rate selection.

Aguilar et al. teach processing audio and speech signals using dependent spectral estimation to represent classified speech.

Grabb et al. teach speech coding system using encoder and decoder using spectral quantization technique.

Kleider et al. teach determining the parameters to control communication rate for adaptive rate communication.

DeJaco (5,911,128) teaches selecting an encoding mode for speech frames, rate determination and variable rate encoding system.

DeJaco (6,484,138) teaches rate coding based on conditions of the speech signal.

DAS teaches low-bit rate coding for unvoiced segments using quantization technique.

Huang et al. teach speech encoder for low bit rate voice messages, frames voice message and vocoder rate used for encoding speech.

Hardwick et al. teach encoder that uses random bit modulation.

Gao et al. (2002/0143527) teaches encoder and decoder.

Eid et al. (2004/0086130) teaches encoder and decoder.

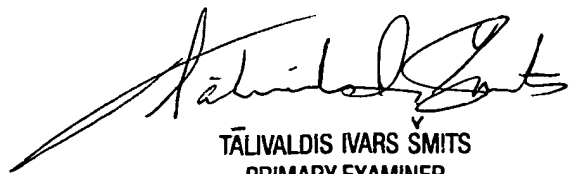
Richardson et al. (2004/0168114) teaches encoder and decoder.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Myriam Pierre whose telephone number is 703-605-1196. The examiner can normally be reached on Monday – Friday from 5:30 a.m. - 2:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on 703-306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

02/28/05



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PRIMARY EXAMINER